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| **Course code**  **214286** | **Course name**  Special Subjects of Java | **Credits: 4** |
| **Teaching Methods:** | Lecture (45 hours) , Computer Lab (30 hours), homework (60 hours) | |
| **Description:** | Java is an object-oriented programming language. The previous courses “Basic Programming”, “Advanced Programming” have helped students become familiar with Java programming language from object-oriented approach: classes, properties and methods, etc. This following course focuses mainly on object-oriented programming, it deeply introduces the Java programming language purely, helps students become proficient using the Java Programming language such as Declaration and access control, Object declaration, Assignments, Operators, Flow control, exceptions and assertions, String ,I/O, formatting and parsing, Generics and collections, Inner classes and Threads | |
| **Course Objectives:** | * Knowledge:   + Providing In-depth knowledge of Java programming language   + Consolidating knowledge of object-oriented programming in Java   Skills: Good usage of Java commands, object-oriented analysis | |
| **Course Content:** | **Part 1: Java Basics**   * + Legal Identifiers   + Java Code Conventions   + Working With Java Data Types   + Define the scope of variables   **Part 2: Using Operators**   * + Understanding Operations on Data   + Operator Classification   + Arithmetic Operators   + Relational Operators   + Logical Operators   + Assignment Operators   + Arithmetic Promotion   + Advanced Operators   + Equality of Two Objects or Two Primitives   **Part 3: Control Flow Statement**   * Looping * Decision making * Exception handling * Branching   **Part 4: Handling Exceptions**   * Prerequisite Thinking * Exception * Exception Usage * Traditional Error Handling vs. Exception * Create Exceptions * Throw Exceptions * Guidelines   **Part 5: Object Oriented Programming with Java**   * Abstraction / Modelisation * Encapsulation * More about class * Inheritance * Polymorphism * Abstract class and Interface * Value type/Referenced type * String class * Date/Time operators * MVC pattern   **Part 6: Java Collection Framework**   * List * Set * Map   **Part 7: Thread Programming in Java**   * Process and Thread * What is a thread * How to create threads in Java * The Life Cycle of a thread * Thread Priority * Synchronization of threads | |
| **Assumed Knowledge:** | Advanced Programming – 214331, Data Structures - 214441 | |
| **Course Requisites:** |  | |
| **Assessment Items:** | Examination: Formal (mid-term/final) | |
| **Contact Hours:** |  | |
| **Reference** | * Kathy SierraandBert Bates, SCJP Sun Certified Programmer for Java 6 Study Guide, McGraw-Hill,USA 2008 * Cay S. Horstmann, Gary Cornell, Core JAVA, Volume I, Sun MicroSystem Press, USA 2004. * Cay S. Horstmann, Gary Cornell, Core JAVA, Volume II, Sun MicroSystem Press, USA 2004 | |